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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,504	10/29/2003	Carsten Michaelson	P8073US	8159
7590 10/05/2005			EXAMINER	
Kohler Schmid + Partner Ruppmannstr. 27 Stuttgart, D-70565 GERMANY			HO, ALLEN C	
			ART UNIT	PAPER NUMBER
			2882	

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/695,504

Applicant(s)

MICHAELSEN ET AL.

Examiner

Allen C. Ho

Art Unit

2882

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3 and 5-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 5-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 July 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3, 5-12, and 15-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen (U. S. Patent No. 6,317,483 B1).

With regard to claims 1-3, 5, 11, and 12, Chen disclosed a reflector for x-ray radiation, the reflector comprising: means defining a first non-circular arc shape along a first cross section (ellipsoidal or parabolic), the first cross section extending in an XZ plane containing an X direction; and means defining a second non-circular arc shape along a second cross section (ellipsoidal or parabolic), the second cross section extending in a YZ plane perpendicular to the X direction, wherein the first and the second arc shapes focus or render parallel in two dimensions through one single reflection of the x-ray radiation (a doubly-curved mirror, z-axis coincides with the optical axis 2-2, Fig. 3A and column 2, lines 18 - 44).

With regard to claims 6-10, Chen disclosed the reflector of claim 1, further comprising a periodically repeating sequence of layers of materials A, B, ... with different refractive indices (column 4, line 52 - column 4, line 3), wherein a sum of thickness of successive layers of the materials change monotonically along the X-direction (column 3, lines 38 - 40).

With regard to claim 15, Chen disclosed an x-ray analysis device comprising an x-ray source, an x-ray detector, optical shaping and/or delimiting means (a collimator is required to operate a point x-ray source), and the reflector of claim 1 (column 2, lines 26 - 44).

With regard to claim 16, Chen disclosed the x-ray analysis device of claim 15, wherein x-ray radiation impinges on the reflector at an angle of less than 5° with respect to the x-direction (A point source emits x-rays in all directions, some x-rays impinge on the reflector at glancing angle).

With regard to claim 17, Chen disclosed the x-ray analysis device of claim 15, wherein a curvature of the reflector along the second cross-section is formed such that a reflectivity of the reflector is maximum for a wavelength of radiation generated by the x-ray source (This is simply Bragg diffraction. Column 3, lines 38 - 51).

With regard to claims 18 and 19, Chen disclosed the x-ray analysis device of claim 15, wherein the reflector focuses x-ray radiation to a focal spot (column 4, lines 4 -30).

With regard to claims 20 and 21, Chen disclosed the x-ray analysis device of claim 15, wherein the certain ray divergence generates parallel rays (a collimated beam, column 4, lines 31 - 38).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 13 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen (U. S. Patent No. 6,317,483 B1) as applied to claim 1 above.

With regard to claims 13 and 14, Chen disclosed the reflector of claim 1. However, Chen failed to disclose that the reflector has a reflecting surface width of at least 4mm.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to provide a reflecting surface width of at least 4mm, since a person would be motivated to provide a reflecting surface that is dimensioned to capture x-rays according to application requirement.

Response to Amendment

5. Applicant's amendment filed 20 July with respect to the drawings have been fully considered and are persuasive. The objection of the drawings has been withdrawn.

6. Applicant's amendment filed 20 July with respect to the specification have been fully considered and are persuasive. The objection of the specification has been withdrawn.

Response to Arguments

7. Applicant's arguments with respect to claims 1-3 and 5-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

- (1) Chen (U. S. Patent No. 6,829,327 B1) disclosed total-reflection x-ray fluorescence apparatus using a doubly-curved optic.
- (2) Takenaka *et al.* (U. S. Patent No. 6,625,251 B2) disclosed a laser plasma x-ray generation apparatus.
- (3) Kandaka *et al.* (U. S. Patent No. 6,590,959 B2) disclosed a high-intensity source of short-wavelength electromagnetic radiation for microlithography.
- (4) Kandaka *et al.* (U. S. Patent No. 6,339,634 B1) disclosed a soft x-ray light source.
- (5) Kondo *et al.* (U. S. Patent No. 6,285,743 B1) disclosed an apparatus for soft x-ray generation.
- (6) Barbee, Jr. *et al.* (U. S. Patent No. 6,278,764 B1) disclosed a high efficiency replicated x-ray optics.

9. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

Art Unit: 2882

however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (571) 272-2491. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward J. Glick can be reached at (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Allen C. Ho
Primary Examiner
Art Unit 2882

01 October 2005